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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,067	12/28/2001	John Durbin Husher	2208P	9458
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			EXAMINER	
			WILSON, CHRISTIAN D	
			ART UNIT	PAPER NUMBER
			2824	

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,067

Applicant(s)

HUSHER, JOHN DURBIN

Examiner

Christian Wilson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 1 – 8 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 9 – 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellul *et al.* in view of Thomas *et al.*

Regarding claim 9, Ellul *et al.* (US 5,614,750) teaches a semiconductor device [Figure 6] comprising a substrate **52**, a plurality of device structures **90**, a buried layer **54**, an interconnect comprising a slot **78**, a conductive material **82** in the slot, oxidized sidewalls **80** which forms a sinker to the buried layer [column 4, lines 63-67]. Thomas *et al.* (US 4,933,743) teaches a metal **26** in a slot to form an interconnect. It would have been obvious to one of ordinary skill in the art to use a metal in the device of Ellul *et al.* since Ellul *et al.* teaches the use of other conductive materials such as those taught by Thomas *et al.*

Regarding claims 10 – 12, Thomas *et al.* further teaches multiple metals in the interconnect slot which partially fill the slot with a final metal which provides the interconnect

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layer. It would have been obvious to one of ordinary skill in the art to use the multiple metals of Thomas *et al.* in the device Ellul *et al.* since the structure of Thomas *et al.* provides lower resistance and improved electromigration resistance [column 2, lines 63-67].

Regarding claim 17, Ellul *et al.* further teaches a sinker coupled to a collector 55.

4. Claims 13 – 16 and 18 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellul *et al.* in view of Thomas *et al.*

Regarding claim 13, Ellul *et al.* teaches a semiconductor device [Figure 6] comprising a buried layer 54, an interconnect comprising a slot 78, a conductive material 82 in the slot, oxidized sidewalls 80 which forms a sinker to the buried layer [column 4, lines 63-67]. Thomas *et al.* teaches a metal 26 in a slot to form an interconnect. It would have been obvious to one of ordinary skill in the art to use a metal in the device of Ellul *et al.* since Ellul *et al.* teaches the use of other conductive materials such as those taught by Thomas *et al.*

Regarding claims 14 – 16, 20, and 22, Thomas *et al.* further teaches multiple metals in the interconnect slot which partially fill the slot with a final metal which provides the interconnect layer where the high current carrying conductors are on the same level [Figure 1L]. It would have been obvious to one of ordinary skill in the art to use the multiple metals of Thomas *et al.* in the device Ellul *et al.* since the structure of Thomas *et al.* provides lower resistance and improved electromigration resistance [column 2, lines 63-67].

Regarding claim 18, Ellul *et al.* further teaches a slot coupled to the emitter 94.

Regarding claims 19 and 21, Ellul *et al.* further teaches a CMOS integrated circuit structure with a bipolar device. Thomas *et al.* teaches an integrated circuit with bipolar and MOS logic circuits on the same device [column 1, lines 12-25]. It would have been obvious to

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one of ordinary skill in the art to use the device of Ellul *et al.* in an IC comprising bipolar transistors and MOS transistors since these are well known in the art as devices integrated on the same circuit using high voltage interconnects.

Response to Arguments

5. Applicant's arguments filed October 14, 2003 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant argues that neither Ellul *et al.* nor Thomas *et al.* teach the limitations of the claimed invention, but no arguments are made against the combination of Ellul *et al.* and Thomas *et al.* as used in the preceeding rejection.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian Wilson whose telephone number is (571) 272-1886. The examiner can normally be reached on weekdays, 7:30 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2800.

Christian Wilson, Ph.D.
Patent Examiner
Art Unit 2824

CDW
December 30, 2003



RICHARD ELMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800